

REMARKS/ARGUMENTS

35 USC § 102(b)

Claims 1, 5-8, and 12 were rejected under 35 USC § 102(b) as being anticipated by Madsen (U.S. Pat. No. 1,768,468). The Applicant disagrees, especially in view of the amendments made herein.

As amended herein, claim 1 expressly requires that the "...bubble cap is coupled to a distribution plate to thereby form a passage for downward flow of a mixture of a liquid fluid and a gaseous fluid through the distribution plate..." and that the "...distribution plate is disposed within a reactor that is configured such that the liquid fluid and the gaseous fluid move in a downward motion within the reactor..."

As claims 5-8, and 12 depend on amended claim 1, the same limitations apply. Clearly, Madsen fails to teach such configuration. Consequently, claims 1, 5-8, and 12 are not anticipated by Madsen.

35 USC § 103

At the outset, the applicant notes that the subject matter of the claims was commonly owned at the time the invention was made.

It should be generally noted that the length of the divider as claimed and described by the applicant is not a trivial design consideration, but plays (among other factors) a significant and heretofore unrecognized role in improved liquid/gas distribution. Among other factors, the *claimed minimum length of the dividers increases hydraulic resistance to a degree such that the flow rate at a bubble cap is reduced where the fluid level at that cap is relatively high.*

Thus, the dividers provide a self-regulating flow limiting mechanism that allows balanced mass flow throughout the entire area of the distribution plate. Clearly, this function has not been recognized by any of the references. In fact, the only function associated with the divider in the cited references is presented by Ballard, teaching that the dividers act as tabs that prevent loss of concentric positioning of the cap relative to the riser.

Claims 2-4, and 9-10 were rejected under 35 USC § 103 as being obvious over Madsen. The Applicant once more disagrees. Among other things, each and every element must be taught or suggested by the reference. As discussed above, this is not the case. Furthermore, it should be noted that *Madsen teaches an upwardly flow of air in a device wherein the air passes to some degree through water that is disposed on top of a tray to thereby purify upwardly moving air from small particulate matter.* Clearly, a concurrent downward flow of a mixture of air and water would render Madsen's air purification device *inoperable for its intended purpose.*

Claim 11 was rejected under 35 USC § 103 as being obvious over Madsen in view of Jacobs. The Applicant again disagrees. Among other things and as discussed above, Madsen cannot be properly applied as an obviousness type reference. Furthermore, the subject matter of the present claims and the Jacobs application was under an obligation to be assigned by the same assignee (Fluor Corporation) at the time of filing. Thus, and at least for these reasons, a rejection of claim 11 based on a combination of Madsen with Jacobs is improper.

Claims 1-10, and 12 were rejected under 35 USC § 103 as being obvious over Madsen in view of Ballard. The Applicant again disagrees. Among other things, Madsen cannot be properly applied as an obviousness type reference (see above). Thus, and at least for these reasons, a rejection of claims 1-10, and 12 based on a combination of Madsen with Ballard is improper.

Claim 11 was further rejected under 35 USC § 103 as being obvious over Madsen in view of Ballard and further view of Jacobs. The Applicant disagrees. Again, Madsen cannot be properly applied as an obviousness type reference. Thus, a combination of Madsen with Ballard and Jacobs is also improper for the same reasons as provided above and the rejection should be withdrawn.

Claim 13 was rejected under 35 USC § 103 as being obvious over Madsen in view of Bolles. The Applicant disagrees once more. As discussed above, Madsen cannot be properly applied as an obviousness type reference. Thus, combination of Madsen with Bolles is also improper for the same reasons as provided above.

Claim 14-20 were rejected under 35 USC § 103 as being obvious over Ballard in view of

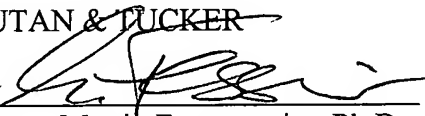
Madsen. The Applicant again disagrees. Among other things, and with respect to Ballard's centering lug, it should be noted that the *claimed minimum divider length has indeed critical functionality* in that that divider length provides increased hydraulic resistance at increased fluid levels (see page 7, line 19 et seq. in corresponding WO02/051530). Such self-regulating hydraulic resistance will in turn provide even fluid distribution. This critical divider function has clearly not been recognized by Ballard. On the contrary, Ballard teaches that the cross flow distribution can be improved using baffles perforated trays etc. (see e.g., column 7, lines 13-19). Not surprisingly, Ballard therefore teaches that the lugs are only employed to center the cap relative to the riser. With respect to Madsen, the same arguments as provided above apply. Therefore, the rejection of claims 14-20 should be withdrawn.

The applicant believes that the present claim amendments are sufficient to overcome the Examiner's concerns and believes that the claims as amended are now in condition for allowance. Therefore, the applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

~~RUTAN & TUCKER~~

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